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# REMARKS ON THE CHOICE BETWEEN WATER AND AIR AS DISTENDING MEDIA IN CYSTOSCOPY; (2) PRESENTATION OF A NEW EXAMINING AND CATHETERIZING CYSTOSCOPE.[1]

By BRANSFORD LEWIS, M. D., St. Louis.

A SURVEY of the writings on cystoscopy of the last two or three years shows a considerable variety of views as to the choice between air and water as a distending medium in employing that splendid adjuvant for urinary diagnosis, the cystoscope. In the very active discussion of the subject, a middle ground is hardly to be found. The position usually assumed is that of championing the one method, to the exclusion—almost the obliteration—of the other. It reminds one of the discussion of the operative treatment of prostatic hypertrophy that bestirred our journals a few years ago, wherein no self-respecting operator countenanced more than one method of operating for that condition, and condemned all the remainder. Further discussion, however, has brought order out of chaos; and it is now admitted that there is a place for two different avenues of approach for prostatectomy, as well as some restricted sphere for the modes of electro-incision. The tendency seems to be to adopt the operation to the patient, rather than make the patient fit the operation.

It would seem proper and fitting, likewise, to discuss the subject of air- and water-cystoscopy in an unprejudiced light, and if possible, reconcile the great differences between the two sides.

It must be granted, at the outset, that if it be simply a matter of choosing the most *comfortable* of the two media, the argument is altogether in favor of water. That is the medium natural to the bladder, to which it has been accustomed all its life, and which

[1] Read before the American Urological Association, at Boston, Mass., June, 1906.

does not shock its sensibilities save when introduced in too great quantity, or at an improper temperature. Whereas, air, even when warmed, is not borne with comfort, and in most cases (not all), must be used in connection with some form of (local) anesthetic.

But, in this as in other branches of surgery, disagreeable necessities sometimes arise, compelling the use of means or methods not relished by either surgeon or patient. Such a disagreeable necessity is occasioned when we meet with a case of such rapid bleeding into the bladder that the fluid medium is quickly clouded, promptly obscuring the field of search for ureter openings and requiring prolonged manipulations, repeated washings, or postponement until a later date, when there is less bleeding. In such a case I am firm in my belief that the air cystoscope is the appropriate one, and the one to simplify conditions and give prompt and reliable assistance.

It does not give the large cystoscopic picture offered by modern lens instruments, but that is not the prime object of the air cystoscope, at least not the one with which my name is associated. The main purpose of this instrument, as contended from the first, is to make ureter-catheterization a more reliable and successful procedure, especially in cases that would be difficult for water-medium instruments.

By far the larger majority of ureter-catheterizations that I have done in the past two or three years have been effected with straight-view, water-medium instruments; which is a sufficient indication where my own choice lies when it is only a matter of choice from the standpoint of comfort. And yet I have done synchronous double catheterism in a number of cases with the air-cystoscope that, I have been convinced, for the reasons mentioned, were beyond my ability with any form of water-medium instrument.

With reference to the objections raised by some against the use of air on account, as they say, "of the frequent necessity of swabbing the bladder to keep it dry," etc., these are merely questions of technique, to be overcome by greater familiarity with the method. In several years' use of it, I have not once tried to dry the bladder by means of the swab, but have always taken care of that by other means, such as the use of sufficient local anesthesia, posture, and bladder-dilatation.

To sum up, then, water-distention is the medium of choice where its use is feasible; but some difficult cases may make it highly desirable to have recourse to the air medium.

*Operative Cystoscopy*—When it comes to operative cystoscopy, the arguments in favor of air are much more weighty. Under the necessity of operating for some malady of the bladder or ureter, the differences between the two media in point of *comfort* are of but little moment; expediency and efficiency are then the deciding factors.

While efforts at catheterization, even when carried out in a water medium, seldom cause, per se, sufficient bleeding to prevent the accomplishment of that purpose, that cannot be said to be the case with reference to *operative measures* in the bladder or ureter. Prolonged instrumentation, cauterization, cutting of mucous membrane, or of ureter opening, rapid dilatation of the latter, and most operative manipulations are accompanied by bleeding that necessarily compromises the view, if fluid is the distending medium. The irrigation-channel provided in such water-medium instruments, is but poor compensation; the field gets cloudier and cloudier, until the operator has, perforce, to discontinue until another sitting.

In developing my *operative cystoscope,* herewith presented, I have adhered altogether to the air plan of distention. The first model of this instrument was completed in 1903; and since that time it has demonstrated its practical utility in a number of interesting cases.[1]

The utmost simplicity has been aimed at in designing the instrument. It consists of a straight tube, a handle at one end, a beak at the other, in which is located the cold electric lamp. After insertion of the instrument into the bladder and withdrawal of the obturator, a perforated window is fitted to the ocular end, through which the various instruments, forceps, dilators, etc., are manipulated while within the range of vision.

*Accessories*—For use in connection with the operative cystoscope, the following instruments have been constructed:

[1] "Ureter-catheterism: Its Purposes and Practicability," *Annals of Surgery,* January, 1903. "Report of Operative Work in the Ureter Through the Author's Catheterizing and Operative Cystoscopes," *Amer. Jour. of Urology,* January, 1905.

Strong alligator forceps, for intra-vesical work.

Slender, inflexible forceps, for intra-ureteral work.

Small flexible ureter-forceps.

Larger flexible ureter-forceps.

Ureter-dilators of two sizes.

Ureter-scissors.

Carrier-tube, for ureter catheter or dilating bougie, or flexible metal probe.

Carrier for platinum snare.

With the dilators presented, dilatation of a ureter opening is as definitely and certainly accomplished as is dilatation of a urethra with a Kollmann dilator; and I have had extremely gratifying results from treatment of such cases by this means.

While I was dubious, at first, as to how much could be expected of the flexible ureter-forceps, experience has shown that it can be manipulated with surprising ability within a ureter. I have introduced both the small and the large forceps of this pattern for a distance of three inches into each ureter, in one case, after dilating the ureter openings—not experimentally, but in search of calculi.

*A Universal Cystoscope*—In presenting the next candidate for cystoscopic favor, I do so with the full realization that there is no yawning vacancy in the cystoscopic field; that "there are others" already in the field; also that it is difficult to find anything really new and original, at this date, in the cystoscopic world; that most of the supposed "new" features are simply modified settings or assemblings of features already made use of. It is not desired to lay any especial claim to priority or originality in this instrument; utility is its basic principle.

Cystoscopes are made for various purposes: Some for examining only, others especially for catheterizing the ureters; some supply a good right-angle view, others an excellent retrospective view, and others, a direct (forward) view. This instrument is intended to fulfill all of these several objects. It is on that account named the Universal cystoscope.

It consists of a sheath, with ocular and illuminating ends; the lenses of the three periscopes furnishing the direct, the right-angle, and the retrospective views; the direct-view periscope carrying the two tubes for ureter catheters.

Notwithstanding the large field of vision and large quantity of light admitted through the lenses (this is a water-medium instrument, chiefly), the outside caliber is relatively small, being number 23, French.

For the purpose of illuminating the fields required for the several periscopes, the beak is fenestrated on both its concave and convex aspects. This not only permits the flooding of all parts of the bladder with light, but also affords ample protection from the breaking of the glass tip that covers the lamp, in some patterns of instrument aiming at the fulfillment of these purposes.

The retrospective view is secured by the same plan adopted in the building of the retrospective cystoscope made for me in 1901, by the Wappler Co., of New York (mentioned in my paper on "Operative Treatment of Prostatic Hypertrophy," read in 1902, before the meeting of the American Association of Genito-Urinary Surgeons, and appearing in the July issue of the *Journal of Cutaneous and Genito-Urinary Diseases,* 1902). The more than hemispherical lens is set on the concave side of the periscope so that its field of vision embraces the prostate and neck of the bladder. The view afforded is very satisfactory. It throws a flood of light on the exact form and size of prostatic outgrowths.

When one has finished looking with this lens, he may instantaneously replace it with the right-angle periscope, without removing the sheath from the bladder, and without the patient feeling any change. By then turning the cystoscope on its axis, a complete view of the lateral walls and of the bas fond is obtained. But, as a matter of fact, the retrospective periscope embraces such a large field that it will be unnecessary in many cases to make the change to the right-angle lens.

In the construction of the direct, catheter-carrying periscope several difficult problems had to be overcome. It was necessary to retain the small caliber for the whole instrument, to have the direct lenses as large as possible for the passage of sufficient light and the enlargement of the field, and at the same time to reserve room for the ureter catheter-tubes. In attacking the same combination problem, some designers of cystoscopes have supplied only one tube with a removable sliding cover, after the manner of Casper; others have made use of a sliding tube for passing a single catheter at a time and then pushing it out of the slot; while

still others have made use of a partition to separate the two compartments for the catheters. Whatever has been the method adopted with reference to the catheter carrying tubes, the same plan has been followed in all with respect to the use of the circular, disk-shaped lens; and in using it, a considerable amount of valuable space is wasted—space that if applied to the lens would materially enlarge its field and its light-carrying capacity. By changing the shape of the direct lens—an idea first suggested by my associate, Dr. C. E. Burford—we have been able to do much in the way desired.

DISCUSSION.

FOLLEN CABOT, New York: I have used the photographic cystoscope with poor results. I am not sure that I have a good instrument. Looking through the lens the picture would tend to converge to the side and not be straight across the field. It may be owing to my lack of experience in focussing. I have found difficulty in keeping the patient quiet a sufficient length of time to get a good picture. In a large villous growth I tried it, but could not get a clear picture. In this case there was some hemorrhage. Possibly if there had been an anesthetic employed it might have been more satisfactory. I consider the work very difficult, and congratulate Dr. O'Neil on his excellent photographs.

Dr. WINFIELD AYRES, New York, N. Y.: I want to congratulate Dr. Lewis on his operative work. I have read the article, and he speaks of extracting small calculi from the lower portion of the ureter, which I consider a great advance, as it obviates the necessity of opening the bladder. These little instruments for picking up small fragments are a distinct advance in the work. As to photography, almost everyone who has tried to do it has failed, and I want to congratulate Dr. O'Neil on his success.

Dr. M. W. WARE, New York, N. Y.: The question was raised yesterday as to the limitations in the use of the cystoscope, and that question was raised in connection with a class of septic cases of the bladder or urinary tract, and I refer to this merely to gain an expression of opinion of the use of this instrument in just such conditions. The limitation of this instrument seems to be narrowed down to a condition in which the bladder is extremely intolerant, and that is in cases of vesical tuberculosis, and even here, in a few exceptional cases. With regard to the value of the photographic cystoscope, I find this instrument so efficacious and clear that I can use it for ordinary observation, preceding the photography of the bladder. You can find out the time for exposure necessary, by testing this instrument before an ordinary plate in a holder previous to resorting to photography, which can be done in a dark room. Just flash the light from one to six seconds. Instead of the plates provided by the manufacturers, I use some of the films of domestic manufacture which are cut to the size of the plate holder. In order to make a rapid exposure, the light of the controller is turned on by yourself, or by an assistant.

S. L. ELSNER, Rochester, N. Y.: I wish to emphasize one point with regard to men not holding to one system. I was glad to hear Dr. Lewis say that we should select the method best adapted to the case in hand. My experience teaches me that there are a large number of cases that bleed a little when examined, and to resort to water as a medium, is dangerous, while air in these cases gives the best results.

PLATE IX—To Illustrate the Article by Dr. Lewis.

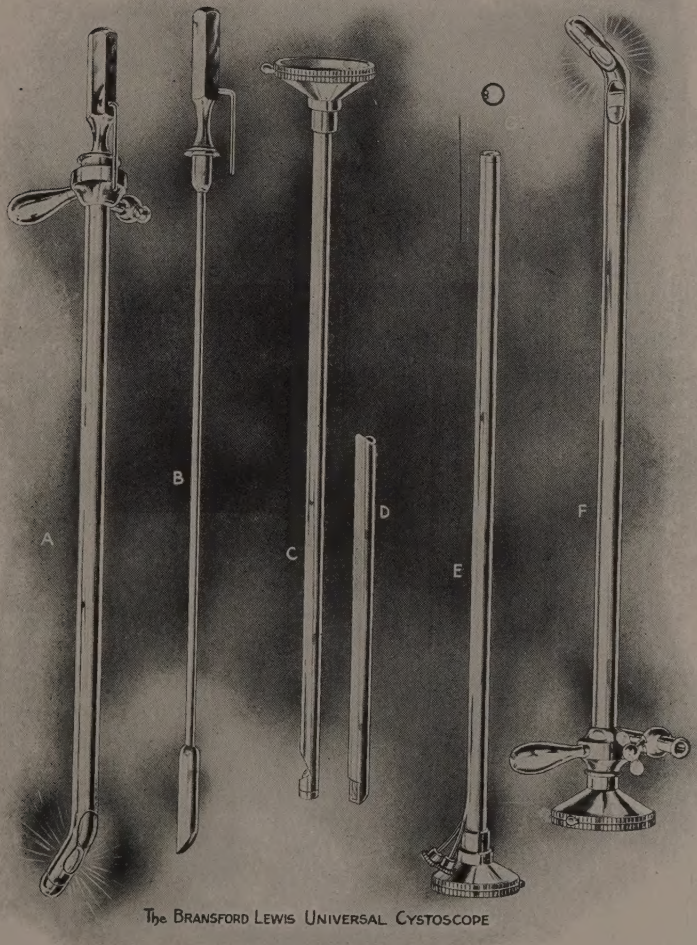


FIG. 1.

A. Convex view of cystoscope sheath.
B. Obturator for sheath.
C. Retrospective telescope.
D. Right-angle telescope.
E. Direct-view and catheterizing telescope.
F. Concave view of same.

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PLATE X—To Illustrate the Article by Dr. Lewis.

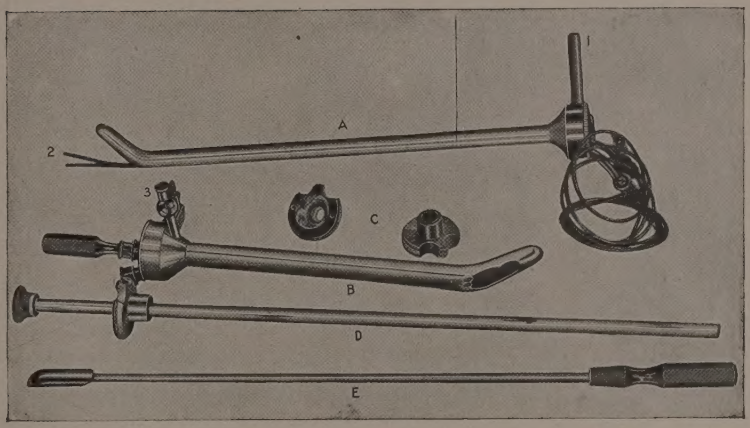



FIG. 2.

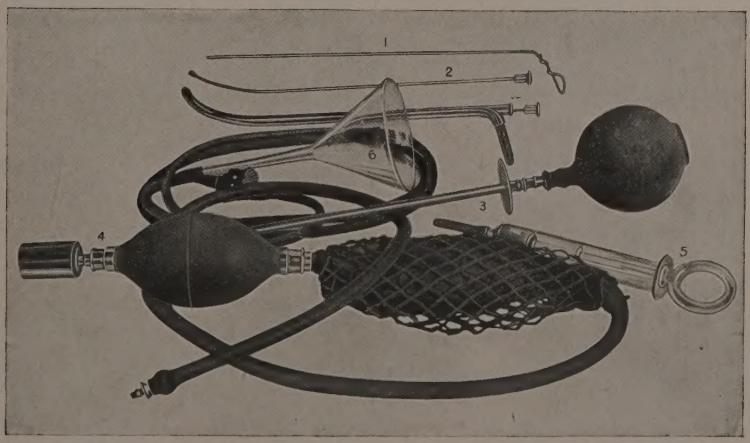



FIG. 3.

# INDICATIONS FOR CYSTOSCOPY AS A MEANS OF DIAGNOSIS.[1]

CHARLES S. STERN, A. B., M. D., Hartford.

AT the present day, and especially before the members of this Association, I feel that the practice of cystoscopy requires no advocacy nor defense. But there are many men of high standing, both physicians and surgeons, who hold that the cystoscope should be used only as an extraordinary means of diagnosis. It is in order to provoke a discussion on this point, and that we may fix our position as to the limits of its use, that I have the temerity to introduce this subject. For I have nothing new to offer, and my experience is but meager in comparison with many eminent cystoscopists here present.

I include catheterism of the ureters under the general heading, considering this an integral part of the art of cystoscopy.

Most diseases of the urinary organs have a number of symptoms in common. Disturbances of micturition; pains of varying intensity and duration, located more frequently prevesically or at some point along the urethra; pain in the lumbar or inguinal regions, and radiating to the thighs, the rectum, or to the testicles and scrotum. It is remarkable how slight, variable, and indefinite these pains may be in serious cases; and, on the contrary, how very severe when the affection is comparatively mild. Again there may be only vague, uncomfortable sensations within the pelvis, which the patient finds difficulty in describing, associated with digestive disturbances and general ill-feeling, fatigue and malaise.

Urinalysis furnishes evidence of a disturbance in some part of the urinary organs; and we may or may not elicit definite data by palpation in the vesical and renal regions.

Usually, without the cystoscope, we can establish the existence of a pathologic condition in the genito-urinary tract, and often approximate its location and nature. But *with* its use mistakes

[1] Read at the Annual Meeting of the American Urological Association, at Boston, Mass., June 5, 1906.

are less frequent; for we can diagnose with certainty the exact position of a morbid process, and, what is quite as important, nominate the real character of the trouble.

Calculus is certainly a frequent cause of cystitis and pyelitis, and ordinarily its recognition is not difficult. But as a rule, it is already of considerable size, and has produced a great amount of damage to the tissues when its presence is first diagnosed. The vague symptoms which accompany the collection of minute crystals of uric or oxalic acid, and phosphates, before they gradually amalgamate and increase to form the larger calculi, are not indicative of stone; and in such a case the physician is apt to soothe his patient, if not satisfied himself, with a diagnosis of nervousness, irritable bladder, hyperacidity of urine, or something equally non-committal. On the other hand, even a large calculus may be overlooked by all the best methods of diagnosis, when the cystoscope alone will reveal its presence. Of this fact there are many cases already on record, and I will here report another which occurred to me recently.

Mr. B. had suffered four years with pains in the bladder, dysuria, occasional haematuria, and progressive diminution of weight and strength. He had consulted several excellent physicians; and, as the symptoms pointed to calculus, he had been subjected to all the usual means to establish such a diagnosis. A member of this Association made a thorough examination with the stone-searcher last September, and there is no question but that he would have detected a calculus by that method if any surgeon could. Yet after his examination he felt justified in excluding stone. So the patient was not relieved, and finally drifted to the charlatans. In January, Dr. Standish, his family physician, brought him to my office for cystoscopy. I found an elliptical stone 2½ inches long by 2 inches wide, and an inch thick, and immovable at the right side of the trigone. At the same time intense redness of the mucous membrane, shreds of exfoliated mucous membrane and fibrin floating from the bladder walls, and the fluid rapidly becoming cloudy with pus and blood, showed the intensity of the accompanying cystitis. During the following week, Dr. O. C. Smith of Hartford, removed the stone by the supra-pubic operation, and the patient promptly recovered.

The advantages gained by the cystoscope as exemplified in

this case, over and above finding the calculus, were— to learn before operating, the exact, or at least approximate size of the mass, its fixed position, and a high degree of inflammation of the bladder walls, all of which pointed to the necessary procedure for relief, it being clearly apparent that here litholapaxy or perineal section would be inefficient.

Just here I would like to draw attention to the limited value of the skiagraph in such cases, for though the presence of a stone may be thus demonstrated, none of the accompanying conditions will be shown.

So we see that in one of the very frequent causes of cystitis, *only* the cystoscope can give us *exact* and *complete* knowledge of the conditions. But almost all other pathologic states of the bladder give as vague symptoms as do calculi and are even more uncertain of diagnosis. Yet in the cystoscope each has its distinct picture, and can be almost as readily diagnosed by the experienced eye, as on the epidermis, condyloma, herpes, angioma, urticaria, psoriasis, lichen, etc., are differentiated at a glance by one acquainted with these lesions.

The time for resorting to cystoscopy is when any case with urinary symptoms continues to suffer after generally approved treatment has been instituted for a moderate period. Of course many conditions as tuberculosis and chronic inflammations due to trabeculae, diverticulae, sacculae, prostatic hypertrophy, etc., will nevertheless require long continued treatment; but the same symptoms may persist from a cause that is easily remediable, and such cases will become worse and worse until that cause is removed. Therefore, we should ascertain this cause as early as possible with the cystoscope; and by its removal prevent the greater harm which delay produces.

Though it has been a long struggle for the cystoscope to obtain full recognition of its immense value to every practitioner, in the larger cities its great worth is now generally appreciated, and it is coming to be more extensively consulted, to the great advantage of the patients, and physicians as well. Surgeons have learned to guide themselves with confidence by its disclosures; nor would they feel justified in operating upon a kidney without a previous cystoscopy.

It is often possible to obtain all necessary information by a

simple cystoscopy. When the kidneys are at fault, as shown by urinalysis, we can frequently see a bloody, or purulent urine issuing from one ureter, while the other jets forth in clear ripples. Or the appearance of the ureteral orifices is sufficient to diagnose which side is affected, and if the symptoms are urgent, operative interference may be instituted at once. But when conditions warrant, we should unhesitatingly catheterize the ureters, and ascertain the degree of disturbance in each kidney by examination of its separate secretion. Simultaneously we can ascertain the presence of a calculus in the ureter, or a stricture, or other obstruction of its lumen; and renal calculi have thus been diagnosed when other means, including the X-ray, have failed. I do not wish to be misunderstood as undervaluing the X-ray. I consider it a very important auxilliary, but—in urology secondary to the cystoscope.

Though a practical diagnosis can be made by the usual methods in a *certain number* of cases, I believe that even in such cases cystoscopy is indicated for confirmatory evidence, if nothing more.

In most cases the cystoscopic examinations are conducted without anaesthesia, and without pain or even discomfort. It is sometimes advantageous to use cocaine, and occasionally general anaesthesia will be indicated, though personally I have never required it as yet.

Definite indications for cystoscopy in diagnosis may be summarized as follows:

1. Urinalysis findings, of pus, blood, tubercle bacilli, and inflammatory products from above the urethra.

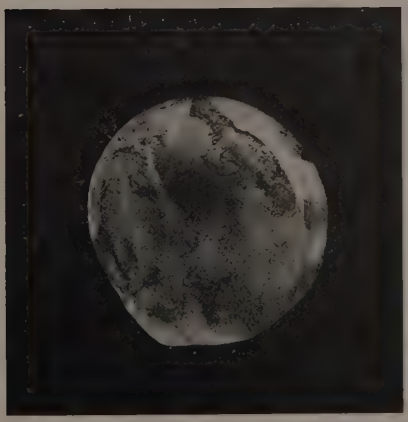
2. Symptoms pointing to calculus, or other solid matter obstructing the lumen of a ureter, or occupying the cavity of the bladder, including foreign bodies, tumors, etc.

3. To locate the site of the opening in recto-vesical, or vagino-vesical fistulae.

4. In prostatic obstruction, to determine the extent of lateral or median lobe encroachment, whether the condition of the bladder warrants any surgical interference, and the best operative procedure.

5. The expulsion of small pieces of stone, or of any other abnormal bodies through the urethra; with or without subsequent symptoms.

PLATE XI—To Illustrate the Article by Mr. Battle.



6. Finally any continued interference with the act of micturition; as enuresis, frequency, obstruction to the flow, etc., when not perfectly accounted for by known conditions.

Accessory indications of importance and value are: to determine the presence and functional power of the opposite kidney; to place a metal bougie in the ureter as a guide in skyagraphy; to place a catheter in the ureter as a guide in pelvic operations; and to ascertain end results after all operations on the kidneys, ureters, bladder and prostate.

So it would seem that cystoscopy is indicated in most conditions of trouble in the urinary tract above the sphincter of the bladder. And I believe the time will soon come when this scope of its utility will be generally conceded.

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## A CASE OF FOREIGN BODY AND VAGINAL CALCULUS. VESICO-VAGINAL FISTULA. KOLPOKLEISIS.

By William Henry Battle, F. R. C. S.

Surgeon to St. Thomas's Hospital, London.

THE patient, a single woman aged sixty-three, was sent up to me at St. Thomas's Hospital, by Dr. A. J. Southey of Colubrook and admitted on March 16, 1906.

The history of the case, was that three weeks ago, Dr. Southey was called in to examine the patient because of the very offensive urinous odor which was associated with her. He then found that she had a continous flow of urine from the vagina, and on making an examination, removed the foreign bodies of which an illustration is appended. He found a large vesico-vaginal fistula. When questioned, the patient admitted that she had introduced the extinguisher-part into the vagina about ten years ago, with the object of relieving an irritation from which she was suffering; it had been there ever since. No trouble had resulted until six months ago, when her urine began to run away without her control; but during this time there has also been a certain amount of normal micturition through the urethra. Occasionally there had been streaks of blood in the urine.

In the last year and a half the patient has had difficulty in

getting the bowels open, and has used aperients regularly. She usually has pain every morning in the lower part of the abdomen, which is not relieved until the bowels have acted.

In the past thirty-five years she has had an inguinal hernia, for which she has worn a truss. It has been always reducible excepting on two occasions, namely, in 1883 and again in 1892, when she had to call in medical assistance to get it back. It was reduced on both occasions after the application of ice.

On admission, she was a stout, well nourished woman, about whom there was a very distinct and objectionable urinous odor. On examination, urine was seen to be dribbling from the vagina. In the anterior vaginal wall, two inches from the meatus urinarius, an irregular opening could be felt, through which the finger passed into the bladder. The edges of this opening are tender, and the patient says that it was here that the body removed by her doctor had lodged. There is large right inguinal hernia, which extends into the labium and is reducible.

The foreign body removed by Dr. Southey, was a large-sized, white, smooth porcelain candle extinguisher of the kind commonly used for bedroom candles. It would easily fit over the end of the thumb, and was apparently lying with the tip towards the cervix uteri. Its interior was full of phosphatic material, and below it was a calculus of similar formation, but of larger size. Around were smaller concretions of phosphatic origin. These were syringed away by Dr. Southey and any ulceration which might have been present at that time, had recovered before admission, as the vagina was carefully douched daily. Mr. Shattock who has mounted the specimen for the Museum of the Royal College of Surgeons of England, is of opinion that the calculus was not (at all events recently) continuous with the contents of the extinguisher, but probably articulated with them by means of a closely fitting, regular joint.

The calculus was probably deposited during the period of urinary incontinence, which the patient placed at eighteen months. At that time (and probably before that time) the ulceration had extended into the urethra and decomposition of the escaping urine commenced.

On March 28th, an examination was made under anesthesia. The opening was found to be a very large one, commencing about

two inches from the urethral orifice and extending upwards for nearly two inches, somewhat egg-shaped, the widest part was oblong. The edges were very hard, and held rigidly apart, traction on them producing no effect in lessening the size of the opening, excepting in the lower part. In consequence of the small size of the vagina, it was extremely difficult to see, or to reach the upper part of the fistula. Two or three sutures were, however, introduced and left in position below. There was no ulceration present.

After this examination, the patient said she could hold her water much better when in bed than she did before, but no great importance was attached to this statement.

April 3. An operation was performed to close the vagina. A circular incision was made about 1½ inches above the meatus urinarius, and a flap of the vaginal mucous membrane raised from below. Silk sutures were then passed through the submucous (or muscular) tissue of the flap from before backwards, so as to close the vagina antero-posteriorly. The raw surface of this flap was thus brought into accurate contact, but none of the sutures of this layer passed into or through the mucous membrane. A second row of interrupted sutures was then put in, bringing the lower line of incised mucous membrane into apposition, also from before backwards.

The result of this operation was to compel the urine to pass through the urethra, and although there had been no interference with the action of the sphincter during the examination, or later, during the operation, the patient suffered from incontinence and could not properly retain more than a few ounces when lying down.

For some days, also, the urine was alkaline and had a considerable deposit of pus and mucus. Large quantities of phosphates were also found.

The sutures were removed from the lower part of the vagina on the 13th, and she left the hospital on the 21st April, being very much more comfortable. All the urine was now passed per urethram, and its character had much improved under the use of urotropin. She could retain it for several hours.

This case is an example of a very uncommon cause of vesico-vaginal fistula, ulceration into the bladder, from the me-

chanical action of a smooth, non-absorbent foreign body. Had the foreign body been of a character to absorb mucus, or become acted upon by the secretion of the part, decomposition must have ensued at an earlier date, and the perforation taken place in a much shorter time. It is very probable that the edge of the opening of the extinguisher produced the first breach of surface and gradually made its way into the bladder, after which phosphatic deposits and decomposition caused a rapid extension of the ulceration.

I recollect very well a case which came under the care of Dr. Henry Gervis, when he was Obstetric Physician to St. Thomas's Hospital, some years ago. It was that of an old woman who was sent up for cancer of the uterus. Examination shewed that the foul smelling discharge, on which the diagnosis had been based, was due to the presence of a large, old-fashioned, circular, metal pessary. Erosion of this had taken place, and ulceration of the vaginal mucous membrane, giving rise to the discharge—the offensive character of which was increased by the accumulation of discharge in the interior of the hollow pessary. It had been introduced some sixteen years before, and never changed. A superficial ulceration of considerable extent had been produced, but the pressure had been diffused, not localised, and therefore perforation had not ensued.

Much credit is due to Dr. Southey for insisting on an examination, which the patient at first refused, and it was only when he had received the support of her employers that it was possible to induce the woman to submit.

The case presented unusual difficulties to the surgeon. 1. The fistula was high up, extending about to the os uteri. 2. It was large, with rigid, fixed edges. 3. The vagina was long and contracted. Moreover, in consequence of the prolonged irritation of the foreign body, the mucous lining was changed, and it was found impossible to increase its width by traction on the speculum.

Taking into consideration the age of the patient, her social state, and the conditions above mentioned, it was decided to close the vagina, and so make its upper part form part of the bladder. There were some additional reasons for this which do not usually obtain, viz.: the vagina was smaller than normal, as a result of

cicatrical changes, its mucous membrane was altered, the opening was a large one, and she had passed the climacteric.

As a rule the operation of kolpokleisis is not one to be commended, for there is a great tendency to the formation of phosphatic calculi in the recess, which is more or less always present afterwards, and the patient may suffer much in consequence. Whether the improved urinary antiseptics of the present day will do much to prevent this, remains to be seen.

In those fistulae which are not amenable to the plastic operations which are usually employed to close them, we have practically a choice of four methods:

1. Closure by means of flaps turned upwards and united to form the base of the bladder.

2. Closure of the fistula by suturing the denuded vesical mucous membrane to its anterior margin.

3. Closure of the fistula by detaching the bladder and suturing it independently.

4. Closure of the vesico-vaginal fistula by suturing the body of the uterus into the opening.

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## OPERATIVE CURE FOR A HITHERTO UNRELIEVED CLASS OF CYSTITES.[1]

By Eugene Fuller, M. D., New York City.

IT is a well known fact that a healthy bladder tends quickly to spontaneously rid itself of germ infection, and in order to enable such a process to persist in that part, some other favorable agency needs commonly to be present to aid the germ in question in effecting a permanent lodgment. The usual agencies favorable to such lodgment, are those causing defects in vesical drainage, such as stricture of the urethra and prostatic hypertrophy, and aside from these calculi, foreign bodies, neoplasms, traumatisms and tuberculosis.

There has for a considerable time, however, been recognized a class of cystites wherein chronic infection persists, or in which a relapsing reinfection repeatedly occurs in connection with which

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it has been impossible hitherto, in the absence of the coexistence of any one of the usual favorable agencies, to account for the lodgment of infection and consequently for the cystitis.

For a number of years it has been established that germs from a focus of chronic infection can permeate the surrounding tissues, and thus enter and infect a nearby organ, having no direct connection with the focus of chronic infection. Hallé and others, recognizing this fact, cured cystites in women by ridding the womb cavity of chronic infection through curettage and other appropriate treatment. Gynecologists generally can now call to mind frequent instances wherein, after operation for the removal of chronically inflamed pelvic organs, chiefly tubes and ovaries, there has followed for this same reason, a spontaneous cure of a chronic and dependent cystitis.

The study of the male bladder presents many problems different from that of the female, still in studying the male organ the surgeon should always be alive to the lessons learned in that connection from the other sex.

A number of years ago I devised and published my operation for opening, draining and otherwise surgically treating the cavities of the seminal vesicles. At first my work in that direction was wholly experimental, but at the present time, as the result of much personal experience, which is represented by seventy-four operative cases, the work has passed out of the realm of experiment, so that I now in private practice, advise, when indicated, seminal vesiculotomy, just as I would cystotomy or any other established genito-urinary operation.

My first twenty-two operative cases I have already published (*Medical Record,* N. Y., May 21, 1904), and expect shortly to publish a condensed report of the subsequent cases. So far I have had no mortality.

In the early performance of seminal vesiculotomy, the operation was undertaken for the relief of the usual symptoms, chiefly of a sexual nature, which accompany chronic inflammatory involvement of the seminal vesicles. In the study of the results in these cases, I found incidentally, that in a number of them symptoms of cystitis, which had coexisted with those of a sexual nature, spontaneously disappeared after convalescence from the operation. This fact led me to make a careful cystoscopic study

of the bladder in a series of cases of seminal vesiculitis. I found as a result, that in those of them where the bladder was involved, the lesion was confined to the base of the organ, in fact to that part of the structure lying over the seminal vesicles. In some of them where the inflammation about the seminal vesicles had been extensive, I found likewise, that the inflammation invading the base of the bladder had been extensive and had extended further than the underlying limits of the seminal vesicles. In all these cases, the other portions of the bladder wall were normal or nearly so in appearance.

From these cystoscopic studies it seemed reasonable to infer that the lesions of the vesical bases accounting for the cystites, were really peripheral ones, the center foci for which were the infected seminal vesicles, the germs in the bladders having penetrated the intervening tissues from the cavities of the seminal vesicles. In other words, I classed the bladder inflammations as localized pericystites. In mild cases, the cystoscope showed the vesical mucous membrane of the area involved, red, infiltrated and edematous, while in the severe types, granulation tissue had in large measure taken the place of the mucous surface. Here and there on these granulations would be pus flocculi, films of inflammatory exudate and spots of hemorrhage. In some of the advanced cases, the least instrumental contact with the surface granulations was sufficient to provoke a fairly free hemorrhage. On one of them a triple-phosphate crustation had formed.

As a result of these investigations, I felt confident that a cure of this form of pericystitis would follow spontaneously after the operative elimination of the chronic infection in connection with the seminal vesicles. Acting on this conviction, I have cured through seminal vesiculotomy, a number of these cases, all, in fact, on which I have so far operated. These results are included in the list of seventy-four instances in which I have so far performed seminal vesiculotomy. For illustration the histories of a number of these cases will be detailed.

List Case 28. Patient fifty-six years of age. His complaint was frequent urination. At times he would be called on to urinate by day every hour or every half hour, while his longest interval would be two hours. At night he would always have to get up twice and sometimes six or eight times. When the acts

of urination were especially frequent, there was much accompanying scalding pain, while during periods of comparative urinary quiescence there was little scalding. Associated with the scalding there was apt to be vesical tenesmus, together with suprapubic and perineal pain. At the age of twenty, he had had gonorrhoea. At forty-four he had been operated on for hemorrhoids. Retention had followed the operation, requiring catheterization. That was twelve years ago, and it was from that time that the patient dated his present trouble. He was married and had no complaint as to his sexual status. His urine was decidedly turbid, chiefly from bacteria, to a less degree from pus. It was acid, contained a trace of albumin, no sugar. Specific gravity 1018. For the last twelve years the patient had been going from one doctor to another without ever having experienced relief, while in many instances he felt that the treatment prescribed had served to aggravate his troubles. His bladder had been washed innumerable times with all sorts of solutions, and his urethra had been overdilated. Special search had been made for stone. Some had thought his trouble might be in the renal pelvis. He had been urged to part with his testicles, to have the Bottini operation tried and to have his prostate removed.

On urination I found his stream full and unobstructed, the bladder being left empty at the end of the act. Rectal examination showed the prostate normal, but a hard, inflammatory mass, the size of a walnut, focused about and involving the right seminal vesicle. The left organ was not involved. Renal palpation showed nothing abnormal. Cystoscopic examination showed a lesion in an otherwise healthy bladder, in the region of the trigonum, chiefly on the right side. Posteriorly the lesion extended beyond the limits of the trigonum. The mucous surface involved was deep red, tumefied, and bled readily from contact with the end of the cystoscope. Adherent to it in spots, were bits of purulent, stringy mucus.

My diagnosis was that the bladder trouble was caused by a localized pericystitis, the origin of infection being the involved right seminal vesicle. Seminal vesiculotomy was performed. The right seminal vesicle was incised its entire length. The cavity of the sac was found to be full of firm granulations. With a sharp curette these were thoroughly removed. The sac cavity

was packed with gauze and external perineal drainage established. The gauze packing was removed at the end of five days. A few days later the tubes were also removed and the track of the wound allowed to close. The patient made a perfect recovery. The vesical urgency speedily disappeared after the operation, though temporarily the pus in the urine increased. In a few months after the operation, however, the urine was clear and sterile, and the patient was in a normal condition. Some time still later, I received a letter from him stating that his bladder was perfectly well and normal. This patient curiously complained before operation of no sexual trouble, possibly owing to the fact that the left seminal vesicle was not involved.

List Case 29. Patient thirty years old. He had had pus and bacteria in his urine for six years following a gonorrhoea. Ever since then his urination had been painful, at times more so than at others. There had been attacks of vesical tenesmus associated generally with a perineal pain, and sometimes with a false desire to stool. Drinking, coitus or vigorous exercise, so tended to aggravate his symptoms, that he had in large measure to abstain from all of them. He stated that during the acute stage of his gonorrhoea six years before, he rode a bicycle, with the apparent result that an abscess formed which caused urinary retention. After several days of severe suffering, there was a discharge of pus per rectum, after which time the power to urinate returned. Ever since then the patient stated he would not infrequently notice circumscribed deposits of pus and mucus on a formed stool. The patient was of the opinion that these deposits came from the old abscess cavity, which still from time to time, discharged itself into the rectum. Rectal digital exploration showed a very marked old chronic inflammation of both seminal vesicles. In fact this inflammation had been so extensive that it had invaded all the surrounding tissues, filling the post-prostatic space and extending forward into the prostatic capsule, so that one uninitiated in the rectal touch might have mistaken the condition presented, for one of prostatic enlargement. On the rectal wall, over the right side of this inflammatory area could be felt a prominent papilla. On putting the patient in the Sims position and introducing a speculum, it could be seen that this papilla marked the opening of a sinus, and that the patient was right in the statement that pus from

time to time leaked out of the old abscess cavity. From the examination it was evident that the abscess which had formed had been focused about the right seminal vesicle. On making a cystoscopic examination, much the same appearance presented itself in this case as in the preceding one. The bladder lesion was confined to the region of the trigonum and to the basic structures somewhat posterior to it. The rest of the bladder presented a normal appearance. There was no urethral stricture. Owing to the bowel sinus, I was at first rather loath to strongly urge seminal vesiculotomy in this case, being fearful that a bad result might follow from fecal contact in connection with the incised tissues. The patient had, however, been for years consulting genito-urinary authorities without any real benefit, and after I had carefully explained the situation to him, he insisted that I should operate.

In the performance of the operation, after I had dissected up and raised the rectum so as to bring into view through the wound the sinus opening into the bowel, my intention was to close it by means of a purse-string suture, and then to open the cavities of the seminal vesicles. On attempting this, however, I found the walls of the gut around the sinus so attenuated and diseased, that no purse-string suture would hold. Consequently, the attempt being abandoned, I cut with scissors longitudinally the raised wall of the rectum through the sphincter, right back into the hole made by the sinus. I then opened the cavities of both seminal vesicles, curetted and packed them with gauze. Next, after packing carefully the lateral paths of the dissection so that feces could not well get under the rectal flaps, I sutured the rectum back into its former position, leaving open and packing the longitudinal cut extending back to the sinus opening. The packings were gradually removed as healing progressed. The patient recovered uneventfully from the operation. For a time, owing to the cut through the rectal sphincter, there was some fecal incontinence, but even that trouble now at the end of a year and a half has ceased to exist. The symptoms of cystitis all disappeared in a short time after the operation. The urine is now clear and sterile. Sexually, he is so satisfactory and competent, that he is shortly to be married.

List Case 33. Patient thirty-five years of age. His com-

plaint was frequent and painful urination. His interval by day never went over an hour, while by night one and a half to two hours, represented his longest period. His urine was foul, being loaded with pus and bacteria. In reaction, it was neutral or alkaline. It contained some triple phosphate crystals and a fair amount of red blood corpuscles. At times the urine had been decidedly red from hemorrhage. There was much suprapubic and perineal pain, which increased as urine collected in the bladder. Exercise served to increase his discomfort. His sexual function was greatly impaired. He had had his trouble for ten years, following an attack of gonorrhoea. During all that period he had been constantly going from one doctor to another without ever having experienced any relief. The treatment he had received had been chiefly directed toward the bladder and urethra. Sounds, injections, irrigations and vesical lavage with every known agent had been employed. Some had suspected calculi, while many had thought the case one of vesicle tuberculosis.

On making a rectal digital examination, a very marked chronic seminal vesiculitis was found to exist. In fact, all the outlying post-prostatic connective tissue outside, and about the seminal vesicles was hard, infiltrated, and the seat of chronic edema. The bladder was carefully washed, till the return flow became clear. Then a 1 to 5000 adrenalin solution was injected, after which the part was carefully distended to its capacity, when the cystoscope was introduced. The same vesical lesion was found here to exist as in the two preceding cases, except that in character it was more advanced and intense. The posterior limits of the inflammatory area extended back beyond the trigonum and the ureteral orifices. The posterior wall of the bladder, the apex and the lateral walls were normal in appearance. Over the affected area, there had in places, formed tufts of granulations, some of which had broken down, ulcerations resulting. Pus flocculi were here and there adherent to the granulations, and in one or two spots over ulcerations, triple phosphate crustations had formed. Hemorrhage readily followed instrumental contact with the granulations. The patient readily consented to seminal vesiculotomy. In performing the operation, I not only opened freely both seminal vesicles, but also dissected the bladder wall free from the inflammatory tissue, somewhat beyond these organs. The

packing and drainage of the wound was carefully arranged. The day after the operation, the patient stated that he was free from the old painful desire to urinate. Recovery in this case was very striking. The patient left the hospital before the end of his third week. He could then hold his urine till six to eight ounces had accumulated, and pass it freely, naturally and without any pain or discomfort. The urine was still quite purulent, but strongly acid. Three months after the operation, the last time I saw the patient, the urine was but slightly purulent, and contained very few bacteria. The rectal feel showed a very satisfactory resolution in connection with the seminal vesiculitis. Cystoscopic examination showed at that time a slight persistance in places of inflammatory evidences. Where the intra-vesical lesions before operation had been so marked, I had not expected complete resolution could have occurred in so short a space as three months. The patient then stated that he was perfectly well, and although requested to report again for observation, he never did so.

List Case 69. A man, forty-eight years of age. His complaint was frequent urination, associated with pain. Pain in the perineum, suprapubic region and lower back, was also complained of. Aside from these symptoms there existed a crippling of the sexual function, neurasthenia and general mental depression. The urine contained some bacteria and a moderate amount of pus. He had been well until five years ago, when he contracted his first gonorrhoea. His present symptoms dated from that time, and had gradually been becoming worse rather than better. This patient had sought relief at many hands, but had never experienced any apparent benefit. His bladder and urethra had been subjected to all recognized forms of treatment.

On examination, per rectum, I found marked chronic involvement of both seminal vesicles. As in the preceding case, the whole post-prostatic space had been invaded by a hard inflammatory infiltration, which extended posteriorly beyond the extreme reach of the finger tip. Urethral examination showed a roomy canal free from lesions. On introducing a Thompson's searcher into the bladder, the fundus to its touch felt hard and rather uneven, suggesting the presence there of a neoplasm. That area also was very tender. The rest of the bladder to the touch of this instrument appeared normal. On inspection with the cystoscope,

the pathological evidences at the base were much less marked than in the preceding cases, the rest of the bladder seeming normal. The pathological appearances were limited to the area which felt hard to the touch of the searcher. I took it that the hard feeling at the base and the appearances there were due to a chronic infiltration and edema, which had extended into the bladder base from the seminal vesiculitis, that lesion representing the primary focus of infection. Seminal vesiculotomy was performed. All the tissues were very hard and infiltrated. After opening both seminal vesicals, the bladder base was dissected free from the infiltrate beyond the apices of those organs, and the whole space packed with gauze and drained. The frequent desire to urinate was relieved, just as in the preceding case, almost immediately after operation. The patient left the hospital at the end of three weeks, retaining the normal amount of urine without discomfort. There was then no pain on micturition. One month after his discharge from the hospital, I saw him for the last time. His urine was then sterile and he was free from symptoms, besides being in a most satisfactory condition. Rectal examination showed the seminal vesicles and the surrounding tissues to be soft and yielding on palpation, the old infiltrate having disappeared.

These and other similar results have interested me greatly. They show another group of pathological conditions which are curable through seminal vesiculotomy. Last year in my paper "The Relation of Gonorrhoeal Rheumatism to Seminal Vesiculitis and Its Cure by Seminal Vesiculotomy," (*Annals of Surgery*, June, 1905), I showed the beneficial effects of the operation in cases of that description, and since then I have had much further favorable operative experience in other like cases.

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# OPERATIVE TREATMENT OF GONORRHOEA IN THE MALE.[1]

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GONORRHOEA has been and is, to my mind, the most neglected subject in the whole catalogue of diseases, which have presented themselves since the birth of rational medicine. Even after the work of Neisser and Bumm, Guyon and Neoggarth, it has only been within the last few years that the enormous havoc of this disease has become recognized by the profession, and we, as a profession, must hold ourselves responsible for the light way in which such a disease is regarded among men. However, at the present time, here and there, arises a man who realizes the terrible devastation which the disease has wrought upon civilization, and comes forth with a plea for its more careful consideration. It is not an over-statement of the fact to say that at least 75 per cent. of all so-called diseases of women are gonorrhoeal in origin, and fully 75 per cent. of the invalidism among women is due to this disease, and a great per cent. of sterile marriages are due to gonorrhoea either of the male or the female. I have no hesitation in making the statement that gonorrhoea causes more pain and sorrow and trouble, than all other known disease at the present time; and in point of importance to the health and earning capacity of a community, gonorrhea stands second only to tuberculosis, if second at all.

A certain per cent. of the ravage of this disease is due to our neglect and incomplete and imperfect treatment of these cases. (Some few extremists among genito-urinary surgeons have laid down the dictum that once a gonorrhoeaic, always a gonorrhoeaic; while others of the old school who, themselves, have been more or less, as the phrase has it, "rounders" in their day, declare that a gonorrhoeal infection is no worse than a bad cold, and amounts really to nothing.) Between these two extremes there is a mean which seems to me to be a more correct position. Just what

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per cent. of men who have had gonorrhea get entirely over the disease, it is a difficult thing to say, but that there is a large per cent. who do not, no one will question. Some from want of treatment; some from conditions which do not yield to treatment; and some through carelessness. Nevertheless, there is quite a per cent. of gonorrhoeaics who have gonorrhoea for years, and which infection resists all the present forms of treatment, and anyone studying the case would not hesitate for a moment to pronounce the patient infectious. They may have no discharge, they may have no symptoms, but still appears occasionally the famous "morning drop," following an extra exertion, a carouse, or excessive sexual excitement; or it may be possible at times to find cases in which the evidence of an old gonorrhoea can only be found by the expression of the prostatic secretion, and the examination with a microscope, where we will find leucocytes or sometimes the micrococcus itself. It is a fair statement to say that anyway 80 per cent. of all gonorrhoeas become posterior, and most of the posterior gonorrhoeas affect the prostate gland. And gonorrhoea of the prostate is the most common and the most stubborn of the present complications of this disease. The gonococcus may lie dormant for years in the urethra, and then be stirred up by some unusual excitement. Bumm has found it there ten years after an infection, and Bransford Lewis claims to have two cases in which auto-infection occurred after a period of twenty-five years. With all the array of facts concerning the enormity of the disease, it is certainly a duty which we owe to ourselves and to the sufferers to look more carefully after these cases. Many of my friends continually inform me that they do not see any of these cases. I can't but think that they are not looking for them. Others of us are inclined to smile at the sufferers who apply for treatment and, oftentimes for the want of knowledge of a definite treatment, they are either superficially treated or are dismissed without any satisfaction as to their condition. These cases are too common to be left to the genito-urinary man entirely. The general surgeons must endeavor to handle these cases in a more rational and scientific manner than we have in the past. Some of us take the attitude that it is beneath the dignity of our consideration. We would rather let them marry and remove the pus tubes from their wives afterwards.

It is not my purpose in this paper to discuss either the pathology of gonorrhoea in general, or to say anything in particular about the medicinal treatment, either local or internal, which is in common use in the profession at the present time; but rather to recite something of personal experience which I, myself, have had in handling these cases. I shall take it for granted that you will accept the proposition that there are certain gonorrhoeas in the male which either cannot be cured at all by the present recognized methods, or can only be cured by years of constant treatment, and the consequent expenditure of a great amount of time and money. That such cases do exist, I know positively, from my own experience, and the man does not live who cures all his cases of gonorrhoea.

I am persuaded, however, that the problem is, after all, not so much a problem of treatment as it is of diagnosis. Not so much a diagnosis of the presence of gonorrhoea alone, which is oftentimes difficult enough, but also the diagnosis of the point of the urethra infected and the pathology existing at that point. This means a careful study of the bladder, the urethra, anterior and posterior, the prostate, seminal vesicles, vas deferens and epididymis. The definiteness with which this is done, controls, to a large extent, the results of our treatment, as well as the method of procedure. I will not, in this paper, enter into a discussion of the use of the cystoscope and urethrascope, taking it as axiomatic that these instruments must be intelligently and carefully used in the determination of these more definite diagnoses. That in addition to this, the prostate has been carefully studied by palpation through the rectum; that the prostatic fluid and urethral excretions have likewise been carefully studied, both macroscopically and microscopically; that careful study be likewise made of the seminal vesicles and their fluid, that the bas fons of the bladder, the ducts leading into the urethra, the sinus procularis, Cowper's glands, the bulb of the urethra, and the anterior urethra have all been, so far as is possible, considered. This seems, at times, rather difficult, but by care one can arrive at a fairly definite idea of the position of the infection, and much knowledge may be gained of the condition of the lesion, and one may approximate a definite anatomical diagnosis. Recognizing the above facts, I have, since 1901, had this problem under consideration, viz.: given a definite anatomical

diagnosis of gonorrhoeal infection in the male, how shall we institute treatment with reference to each particular lesion, and how should these treatments differ? I was persuaded to another conclusion, viz.: That the present treatment of these old chronic gonorrhoeas by instillation, injection, and irrigation, is primitive, oftentimes irrelevant, sometimes injurious. Do not understand me to mean that these kinds of treatment should never be used; but it seems to me a primitive conception to endeavor to cure an infection by producing a chemical inflammatory reaction of the urethra, which many regard as the probable way in which chronic gonorrhoea is cured, and recommend, consequently, the use of strong chemicals in the urethra. They are irrelevant because oftentimes the infected portions are not touched by our present system of medication, and the healthy mucous membrane receives insult after insult. They are more or less guess work, because we do not conceive the infection as existing in a definite part of the urethra, but treat the whole urethra without respect to a definite portion. The use of the endoscope is a step in the right direction, and by the careful use of it the healthy portions of the urethra may be protected, and for the treatment of any chronic anterior urethral infection, the endoscope seems to me to be the ideal method, for by its use we are able to treat the affected areas directly and them alone, and to observe the pathology existing along the urethra. But the endoscope is not satisfactory, or has not proved satisfactory in my hands in the treatment of posterior infections, and it is the posterior infections of the different anatomical structures which prove the most intractible.

It is evident that the physiological factors which make for chronicity in gonorrhea of the male are two, viz.: first, the imperfect drainage of the infected area; second, the continuous use of the urethra as a channel of exit for a complex and more or less irritating chemical excretion. The pendulous urethra drains itself, but the bulbous, the membranous and the prostatic urethra must necessarily drain up hill, and that through a tube that normally lies with closed lumen; consequently drainage, if it takes place at all, does so with difficulty, and naturally enough the infection will be crowded by the laws of resistence into all the existing glands and follicles, which in this region are lined by columnar epithelium and form an ideal place for the growth of the

gonococcus. Attempts have been made to drain the posterior urethra through the anterior urethra by means of wicks of gauze, catheters, etc., but this has proven very impracticable, owing to the size and shape of the urethra, and to the fact that it must be used every few hours for the passage of urine; hence, our ordinary surgical principles of drainage and rest, which have obtained in all other infections with the formation of pus, have been in gonorrhoea thoughtlessly and carelessly violated.

The problem, then, which first presents itself, is an attempt to obtain better drainage for the infected area. It is apparent that it is impracticable to open the anterior urethra at any point. First, because of the anatomical structure of the corpora spongiosa; secondly, because a hole in the anterior urethra frequently leads to a permanent fistula, and thirdly, the anterior urethra can nowhere drain the membranous or prostatic urethra without an uphill flow. We naturally, therefore, came to the conclusion that the posterior urethra must be the point sought for drainage. The membranous portion is, with one exception, the most favorable portion of the urethra for drainage. The exception is, that this membranous portion is limited at each end by the anterior and posterior layers of the pelvic fascia which do not dilate as freely as other parts. In other words, an external urethrotomy for drainage of the urethra is, I believe, a valuable procedure in chronic urethritis, affecting any of the anatomical structures above mentioned. The second point, viz.: rest of the urethra is also established by drainage of the urine through a tube in the perineaum, and we then have not only drainage and rest, but an opportunity to directly approach the urethra. The ability to obtain drainage, rest, and an accessible urethra have led me to do external urethrotomy in old chronic gonorrhoeas where the infection lay in the prostate gland, the membranous urethra or seminal vesicles, or any of the ducts thereto tributary. We have made an ordinary external urethrotomy, going through the anterior layer of the triangular ligament, opening the membranous urethra for nearly its whole length, dilating the posterior urethra forcibly, both in front of, and behind the incised area, using either an ordinary curved forceps for this process or a Kolemann's urethral dilator. A careful examination of the urethra is now made by examining the membranous and prostatic urethra through the

wound, by means of a urethrascope, or sometimes I have used the direct cystoscope. The ulcerating areas are determined, if possible, and in most cases we have been able to gain considerable added information to what we had before the operation. When the prostate or any of its glands or sinuses are the seat of infection, we have curetted the entire mucous membrane away in this area, being careful to reach the bottom, as much as possible, of the sinus procularis, the meatus of the bladder, and the mouth of the seminal vesicles. The entire area is then cauterized with a 20 per cent. silver nitrate solution. It is not necessary to be particularly careful in regard to the mucous membrane in the posterior urethra, because it reconstructs very rapidly, as Freyer has shown, and while in my first two cases I did not curette very thoroughly, in the latter ones I have curetted nearly all the mucosa away, and after this have cauterized the area with twenty per cent. silver solution, applied by a long probe used as an applicator, endeavoring to get at the bottom of as many prostatic follicles and glands as possible. The urine in the bladder and the oozing from the wound interfered very much with this procedure at first. I finally packed the bladder with iodoform gauze, which dammed back the urine, protecting it from the silver, and by the constant use of sponges on carriers, I was able to see a considerable part of the prostatic urethra, and to keep the field clear for examination with the cystoscope and urethrascope. I then dilated the anterior urethra after this procedure by Kolemann's urethral dilator, and cauterized it at the same time with a ten per cent. silver solution. In my first case I used twenty per cent. which is too strong. Most of the mucous membrane of the urethra will slough from a ten per cent. solution. Drainage is then put into the bladder through the perineal incision. I prefer a large tube which goes to the bottom of the bladder. The chief trouble that I have had from this is in obtaining drainage from the bottom of the bladder, most of the tubes not curving down into the bladder sufficiently, but going straight in, and not allowing the bladder to drain from the bottom and urine flowing out over the wound. Great care must be had as to this point. I have consequently used in some cases large gum catheters, which retained their curved shape better than the ordinary drainage tube. I have also tried curved glass rods with a small lumen and a thick wall. I am not entirely satisfied with

the way tubes drain the bladder in this relation, and I have been endeavoring to make a tube with parachute, so that the urine could not escape out around it, and would only escape through the tube.

So far I have treated four cases in the way detailed, and the report is at the end of this article.

I have found, so far, no reference to this procedure in any of the literature, either English, French, or German.

The second class of cases which I wish to discuss are those in which the infection has travelled into the vas deferens, the seminal vesicles, or the epididymis. It has been shown that the gonococcus may lie dormant in any of these areas for years, the known limit of which, according to Neisser, is twenty years. In the following work I have only continued the work of Belfield who reports in the *Journal of the American Medical Association,* for April 22, 1905, the opening of the vas deferens in epididymitis and in old chronic infections of the vas and seminal vesicles. Bazet of San Francisco, has also reported forty-three cases in the AMERICAN JOURNAL OF UROLOGY for May. We wish to report herewith five cases of opening of the vas. The technique that we have used is as follows: The skin is incised in the region of the high operation for varicocele, and arriving at the cord, the vas is dissected from its fascia and freed for a distance of about an inch and a half; it is then opened into its lumen and the edges sewed to the skin. The lumen of the vas can then be irrigated, and has drainage at both ends; that is, at the urethral end of the vas and at the end of the incision. Belfield has shown that a fluid is easily passed from this incision in the vas deferens through the lumen of the vas into the urethra. There is no question that certain forms of chronic gonorrhoea are due to pus tubes in men. They do not produce the symptoms which they do in women, but they produce sufficient symptomatology to be recognized, if carefully studied. There is oftentimes in these cases pain over pubis; when the bowels are distended or the bladder is full, this pain is oftentimes aggravated. Enlargement of vas can be felt, and it is always tender. After the infections in the prostate, I am inclined to believe that those in the vas deferens and seminal vesicles are the most numerous in chronic gonorrhoea. We therefore proceed, as we have indicated, by opening the vas deferens, and injecting into it a one-eighth per cent. of silver nitrate and increasing as we can until

the percentage has arrived in one case to two per cent. So far, my results in both methods of procedure have been apparently ideal, and in the nine cases which I have treated in the two different ways outlined in the paper, I have every reason to believe that the infective process has ceased. None of the cases, however, have been followed longer than two years, and some of them have disappeared immediately upon leaving the hospital. A detailed account of the history of each case is given in the paper, and I will only sum up the general principles here, viz.: first, chronic gonorrhoea is a surgical disease. Second, chronic gonorrhoea requires careful anatomical diagnosis. Third, infections of the prostate and the glands and ducts of the urethra can be successfully treated by external urethrotomy. Fourth, infections of the vas deferens, epididymis and seminal vesicles can be treated by opening the vas, irrigations and drainage.

In conclusion, I do not give you this paper as final upon this subject, because I have not been able to cover all the ground. You have probably noticed many parts of the paper which are not entirely satisfactory. I therefore leave this subject for further consideration, in the hope that we may be able, by these methods, or modifications of them, to do something and promise something for the unfortunate sufferer of chronic gonorrhoea.

Case No. 1. Mr. L., South Omaha, Neb. Had gonorrhoea four and a half years; wished to marry; consulted me in November, 1904.

*Past History*—Good. Had the diseases of childhood; outside of this had never been sick. Contracted gonorrhoea four and a half years before; discharged profusely for three weeks; since then had occasional discharge, with periods of apparently no discharge. Had more or less soreness in urethra at times. Said he could not pass water as freely as before. Several times during the past four years there were periods at which he was compelled to rise once or twice at night to pass urine. Occasional periods of seminal emissions taking place at night, without his knowledge.

*Present Condition*—A. Symptoms: Occasional burning when passing water. Morning drop present; discharge increased after taking liquor. Erections more or less painful.

B. Physical condition: Prostate enlarged and sore; by gentle massage, large quantities of fluid could be expressed. This was centrifuged and examined for gonococci, which, after several attempts, were differentiated. *Posterior urethra;* upon endoscopic

examination, nothing found except a redness and swelling of the vera montanum. *Anterior urethra;* no induration, no infiltration; slight areas of congestion.

*Diagnosis*—Gonorrhoeal infection of the prostate gland.

*Treatment*—Advised external urethrotomy, which was performed in the Wise Memorial Hospital on November 9, 1904, Dr. Hoyt assisting.

Urethra opened as described, prostate cauterized with twenty per cent. silver; bladder drained with an ordinary rubber tube. Anterior urethra dilated thoroughly, and cauterized with a ten per cent. silver nitrate solution. After three days, tube removed and the prostatic urethra cauterized with ten per cent. solution of silver. This was repeated every third day for three doses; after twelve days, the wound was allowed to heal, and the tube was removed. I did not curette off the mucous membrane of the prostate and its adnexa in this case; but think I could have gotten more rapid results, and, perhaps, surer ones, had I done so.

*Results*—In three weeks the wound entirely closed, and for three weeks of observation succeeding this, I found neither morning drop, shreds, nor pus in the urine. Patient married and at the present time tells me that he has no trouble so far as he knows, and his wife is perfectly well.

Case No. 2. Mr. P., salesman for carpet company, Omaha, Neb. Presented himself to me with a gonorrhoea of some two months' duration. Upon examination, found discharge; examination of the prostate gland, showed large fluctuating abscess in the left lobe. Advised external urethrotomy and drainage, as before; which operation was performed in the Wise Memorial Hospital, January 30, 1905. In this case I curetted the mucous membrane off almost entirely, endeavoring to get to the bottom of the abscess; drainage instituted as before, patient making about the same recovery. He was married a few weeks afterwards, without my knowledge or consent. I heard from him last June, at which time said he had never experienced any more trouble and that his wife was well and had borne him a child.

Case No. 3. Mr. S., a Jew. Seen in consultation with Dr. Romm, of Omaha. Found him suffering excruciating pain, giving the following history: Up to about six weeks before, had been perfectly well; had then contracted gonorrhoea; about three days before he was taken with excruciating pain in the perineum; unable to pass water; the doctor was unable to catheterize him, and after several hours of such a condition, I saw the patient; examination by the rectum discovered a prostate more than twice as large as normal, extremely tender, and very hard. We made an external urethrotomy, punctured the prostate through the urethra and large quantities of pus came out, and we curetted out the

abscess and drained as before. After three weeks, I lost track of the patient and have not seen him since. The doctor tells me that, so far as he knows, the patient is entirely well.

Case No. 4. Mr. X., a Hungarian. Contracted gonorrhoea in the fall of 1903. Presented himself at my office in May, 1905. He gave the following history:

*Past History*—He had never had gonorrhoea before, had never been sick in his life, and gave evidence of being a very healthy laboring man. He had had a continual discharge for about two years, at times it seemed to disappear, and at other times to increase. He complained of soreness in the perineum, pain in the head of the penis, and said that at times he was compelled to urinate frequently.

*Present Condition*—Symptoms, occasional burning from passing urine; pain after passing urine; pain very much increased upon using any acid food, such as pickles, or by drinking any sort of liquor. By the use of medicines which made the urine bland, he was able at times to entirely stop all symptoms as well as the discharge; but upon discontinuing the medicine, the trouble returned as before.

Physical examination showed a prostate normal; expression of fluid and examination by the microscope showed neither leucocytes nor micro-organisms. Upon endoscopic examination of the posterior urethra, the vera montanum was swollen, enlarged and congested, as was also the membranous urethra. Anterior urethra showed points of congestion and induration. Certain areas had gone on to the formation of scar tissue.

*Diagnosis*—Gonorrhoeal infection of the posterior urethra and the glands of the bulbous urethra.

*Treatment*—Advised external urethrotomy, as before. This was done after some months of attempts to cure by other means, in the Swedish Hospital, on October 30, 1905, Dr. Dodge assisting. Urethra was opened as described before and drained. The mucous membrane was curetted away around the prostatic and membranous areas; the anterior urethra was dilated and cauterized with a ten per cent. solution of silver. The patient is still about town, I see him occasionally, and he appears to be well, so far as he knows and so far as I am able to determine.

400 Bee Building.

# BALSAMIC TREATMENT OF GONORRHOEA

By Dr. Leopold Lilienthal, Berlin, Germany.

DESPITE the fact that balsamic drugs have been used empirically for centuries, their mode of action is still obscure. In his "Therapie der Harnkrankheiten," Prof. C. Posner, several years ago, remarked as follows: "It is of course, possible to medicate the urethra in an indirect manner, by giving drugs which will pass into the urine, and thus reach the diseased mucous membrane. This form of therapy has long been in vogue, and numerous antigonorrhoic drugs have been recommended. There can be no doubt that they exert a beneficial effect and that the urine and not the blood, brings them to the affected parts. Local irritation, so common with injections, will not occur, though there may be disagreeable after-effects from their use. There are, however, patients who will react to every injection severely, and when this fact is known, the treatment must be restricted to internal medication.

"The active drugs almost all belong to the balsams. They appear in the urine in the form of resinous salts, and these probably inhibit the growth of the gonococcus, though this has not yet been demonstrated experimentally. The most commonly prescribed are the balsams of copaiba and cubebs, which are generally administered together in capsules. They often cause gastric disturbance, cutaneous eruptions, and renal irritation. The after-effects are less severe with oil of santal, provided the preparation is pure."

It has not, however, been proven that really pure oil of santal does not cause some irritation, and reports on disagreeable after-effects have appeared recently. Vieth, therefore, made an accurate analysis of the balsams and examined carefully the following: Oil of turpentine, pine tar, balsam of copaiba, East and West Indian oil of santal, oil of cedar and juniper, the extract of cubebs and Kawa Resin. Four different principles, closely allied genetically, were isolated, viz.: 1. terpenes; 2. terpene alcohols; 3. resinous acids; 4. resenes and other neutral resins and esters.

He found that all balsams yielded several of these groups, and in order to determine which components are responsible for the irritation of the superficial tissues, he made external, local applications on animals.

Terpene and sesquiterpene are pure hydrocarbons. Oil of turpentine and copaiba, the santalen of oil of santal and the chief substance of oil of cedar and juniper, belong to this group. Externally they severely irritate and internally they affect the kidneys.

The terpene alcohols are represented by the santalol of East Indian santal, the amyrol of West Indian santal, etc. They irritate only after continued application.

Resinous acids (pine tar or colophonium, and constituents of copaiba, cubebs and Kawa) do not irritate internally or externally in herbivors, but in carnivors and man they produce diarrhoea.

The resenes and neutral esters do not in any way irritate, and also possess the advantage of being almost without taste and odorless.

Vieth now attempted to convert the other constituents of balsams into resins. He succeeded with terpene alcohols and resinous acids, by combining them with salicylic and benzoic acids. Salol and aspirin are like compounds since the irritating properties of the phenols are here corrected by a similar esterization.

Both Vieth and Ehrmann found that gastrointestinal symptoms will not appear if the esterized resinous acids of copaiba are administered. Eruptions, however, will occur as before. The salicylic ester of the oil of santal was found to be more suitable, and has been placed upon the market under the trade name "Santyl." This is an almost tasteless and odorless oil, of pale yellow color. It contains 60 per cent. of santalol, in chemical combination with salicylic acid. In its unaltered state, it is no more irritating than olive oil, and is only split up into its components after it has left the stomach. This process is so slow that no renal pain will appear, and the breath of the patient will not reveal the drug. In healthy individuals, the excretion by way of the urine commences in about one hour and lasts for about 24 hours. Even with an empty stomach, there is no gastric disturbance.

The conclusions of Vieth and Ehrmann from their clinical experience with a number of patients, the majority of which suffered from gonorrhoeal urethritis, caused me to try "Santyl" in

about 50 successive cases. In the meantime, R. Kaufmann of Frankfurt a/M. has reported 45 cases, and H. Bottstein of Hamburg, 60 cases treated with this drug.

Fifty of the cases treated were acute, and five of these in women. Particular attention was paid to the action of the drug upon the gastrointestinal tract and kidneys, as well as to its general therapeutic efficacy.

The mode of administration was always in the form of drops, 20 being given three times a day after meals. Even in those cases where the drug was purposely given for an extended period before the meals, there was no gastric pain, nausea, eructation, vomiting, colic or diarrhoea. All patients confirmed the almost complete absence of odor and taste.

Renal irritation was not seen in a single instance. Several patients who complained of pain in the renal region after the use of pure santalol or mixtures of santalol with other balsams, could take Santyl for a long time without the slightest disturbance. That unadulterated preparations of santal can irritate the kidneys, as observed by Vieth and Ehrmann, while with Santyl, not a single instance was recorded.

The therapeutic action of the drug is very pronounced. In the five female cases with acute gonorrhoea, the pains ceased very rapidly. The remaining 45 cases, included 18 with acute anterior gonorrhoea, 17 with anterior and posterior gonorrhoea, 7 with gonorrhoeal cystitis and three with prostatitis.

Two of the anterior cases were completely cured after the use of Santyl alone, because, for certain reasons local treatment could not be resorted to. I have, however, had the same experience with the oil of santal, so that Santyl is not necessarily more efficacious. In all other cases, local treatment was also employed (injections of albargin or protargol, Janet's irrigations, bladder irrigations, Guyon's instillations). The results obtained by other authors with this drug, I can confirm. Burning in the urethra, painful urination and the desire to pass water, disappear very rapidly. In the majority of instances, painful erections do not torment the patients. In posterior gonorrhoea, the second portion of urine frequently cleared up completely, even without local treatment of the posterior urethra. This persisted even when the patients again injected the anterior portion of the canal. In three

cases of cystitis, the tenesmus disappeared with Santyl alone, while in the other four, narcotics were necessary. Epididymitis was not met with, but three cases developed prostatitis. In two, Santyl diminished the pains considerably, while in the third, suppositories were necessary.

In conclusion, I would say that Santyl is equally as effective as the other santal preparations, but it should not be regarded as a remedy which will cure gonorrhoea without local treatment. Where the inflammation is so severe that local applications are out of the question, Santyl does excellent service without giving rise to the after-effects so common with the other balsamic drugs. The best results have been obtained in posterior urethrititis, probably owing to the chemical union of santalol with salicylic acid.

The best method of administering Santyl is in the form of drops (20 three times a day to one tablespoonful of water). Since almost without odor and tasteless, it is not necessary to prescribe capsules.

Finally, two patients may be referred to, who suffered from abnormal sensations in the urethra after the gonorrhoea was cured. Santyl did away with these in a short time, even after the bromides had proven ineffective.

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# BOOK REVIEWS

**Surgical Suggestions.**—By WALTER M. BRICKNER, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York; and ELI MOSCHCOWITZ, M.D., Assistant Physician, Mount Sinia Hospital Dispensary, New York. New York: Surgery Publishing Co., 1906.

This book is most novel on account of the many original terse and epigrammatic practical suggestions given. It contains 250 suggestions grouped under proper headings and its contents is carefully indexed. While some of the items are familiar to the practical surgeon, they are presented in a manner that will impress them on the reader's memory.

This book will be found of particular value to the general practitioner as the hints contained are most suggestive and to the point.

From the publisher's view point, the book leaves nothing to be desired.

**Hypertrophie de la Prostate et la Prostatectomie.**—By DR. A. MISSET, Paris, 1906. Bonvalot-Jouve, Publisher.

This little brochure of seventy-eight pages contains the teachings of the Necker school. The author concludes his study by saying that the supra-pubic route is rapid, easy, and perilous; it does not possess all the advantages of the perineal or the combined methods, yet it retains all the dangers. The supra-pubic route should be selected only in marked prostatic hypertrophy in young, thin, vigorous subjects, with proper renal function and who are desirious of retaining their sexual functions.

The combined method is particularly indicated when the so-called middle lobe is very large.

The book is illustrated by sixteen excellent figures.

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